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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,775	06/27/2003	Hideki Takahashi	02860.0746	6385

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Washington, DC 20005-3315

EXAMINER

FUREMAN, JARED

ART UNIT PAPER NUMBER

2876

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,775

Applicant(s)

TAKAHASHI, HIDEKI

Examiner

Jared J. Fureman

Art Unit

2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 2, line 1: Should "IC-tip" read --IC-chip--? (note that "IC-tip" is used throughout the specification, however, "IC chip" is used in the claims)

Page 8, line 16: "Fig. 3 is" should be replaced with --Figs. 3a and 3b are--, in order to correspond with figures 3a and 3b as shown in the drawings.

Appropriate correction is required.

Claim Objections

2. Claims 4, 5 and 13 are objected to because of the following informalities:

Claims 4:

Line 3, "the" (second occurrence) should be replaced with --an--, in order to avoid a lack of proper antecedent basis for "the area of the upper surface of the metallic reinforcing plate".

Line 5: "the" (first occurrence) should be replaced with --an--, in order to avoid a lack of proper antecedent basis for "the area of the IC chip".

Line 11, a period should be placed at the end of the line.

Claim 5, line 3: a period should be placed at the end of the line.

Claim 13, line 1: "and" should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 6, 7 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirai et al (US 6,160,526).

Hirai et al teaches an IC card (Bb, see figures 29-31), comprising: a first support (cover sheet 70); a second support (cover sheet 71); an IC module (Am, see figures 29-31) including an IC chip (2), a reinforcing structural member (substrate 1) neighboring to the IC chip and an antenna (3); the IC module provided between the first and second supports (see figures 29-31); a first adhesive layer (8) provided between the first support and the reinforcing structural member; and a second adhesive layer (8a) provided between the second support and the IC chip; wherein when the IC card is curved with a radius R1 curvature, the following formula is satisfied: $R1 < R1' < R2 \leq R3$ where R1' is a radius of curvature of an outermost layer of the IC card, R2 is radius of curvature of the reinforcing structural member, and R3 is a radius of curvature of the IC chip (as shown in figure 31, when the IC card Bb is curved, Applicant's claimed formula is satisfied); wherein when D1 a thickness of the first adhesive layer and T1 is the maximum length of the reinforcing structural member, $D1/T1$ is 0.001 to 0.05; wherein $D1/T1$ is 0.002 to 0.04; wherein when D2 is a thickness of the second adhesive layer and T1 is the maximum length of the reinforcing structural member, $D2/T1$ is 0.001 to

Art Unit: 2876

0.05; wherein $D2/T1$ is 0.002 to 0.04; (while Hirai et al does not state a specific thickness of the adhesive layers or a specific length of the structural member, the scale of these components, shown in figures 29-31, suggest to one of ordinary skill in the art Applicant's claimed ranges of $D1/T1$ and $D2/T1$); wherein the first and second adhesive layer is formed by a reactive-type hot-melt adhesive (see column 12, lines 59-67, wherein it is described that the sheets 8 and 8a are bonded with the use of heat and pressure) (also see figures 29-31, column 4 lines 54-59, and column 12 line 50 - column 13 line 25)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al.

The teachings of Hirai et al have been discussed above.

Hirai et al fails to specifically teach wherein an image receiving layer is provided on the first support; wherein a writable layer is provided on the second support.

However, official notice is taken that at the time of the invention it was well known to those of ordinary skill in the art to provide an image receiving layer or writable layer on the top and bottom of an IC card, in order to provide text, graphics or data storage capability.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the IC card as taught by Hirai et al, wherein an image receiving layer is provided on the first support; wherein a writable layer is provided on the second support, in order to provide text, graphics or data storage capability on the surfaces of the IC card, thereby allowing a user to distinguish the type of IC card (credit, identification, etc.).

7. Claims 4, 5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al in view of Usami et al (US 6,291,877 B1).

Re claims 4 and 5: The teachings of Hirai et al have been discussed above. Hirai et al also teaches wherein the reinforcing structural member has an upper surface on which the IC chip mounted and an area of the upper surface of the reinforcing structural member is larger than an area of the IC chip (see figures 29-31), and wherein when θ is an angle between the upper surface of the reinforcing structural member and a line connecting an edge of the upper surface of the reinforcing structural member with an edge of an upper surface of the IC chip, the following formula satisfied: $0.02 < \tan \theta < 0.2$; wherein the following formula is satisfied: $0.03 < \tan \theta < 0.15$ (while Hirai et al does not teach specific sizes and dimensions of the IC chip and the reinforcing structural member, the scale of these components, shown in figures 29-31, suggests to one of ordinary skill in the art at the time of the invention Applicant's claimed formula) (also see figures 29-31, column 4 lines 54-59, and column 12 line 50 - column 13 line 25).

Hirai et al fails to specifically teach wherein the reinforcing structural member is a metallic reinforcing plate.

Usami et al teaches an IC card including an IC chip (LSI chip 105) and a reinforcing structural member (a metal material, see column 10, lines 6-7), wherein the reinforcing structural member is a metallic reinforcing plate (see column 10, lines 6-7).

In view of Usami et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the IC card as taught by Hirai et al, wherein the reinforcing structural member is a metallic reinforcing plate, in order to further increase the strength of the IC card.

Re claims 8-11: The teachings of Hirai et al as modified by Usami et al have been discussed above.

Hirai et al as modified by Usami et al fails to specifically teach wherein the first and second adhesive layers have a 2% modulus of elasticity of 5 kg/mm^2 to 55 kg/mm^2 and a ductility at a breaking point of 200% to 1300%; wherein the 2% modulus of elasticity is 6 kg/mm^2 to 50 kg/mm^2 ; wherein the reinforcing structural member has a Young's modulus of 150 Gpa to 450 Gpa; wherein the IC card has a thickness of $5 \text{ }\mu\text{m}$ to $100 \text{ }\mu\text{m}$.

However, Usami et al teaches that the strength and bending characteristics of the IC card depend upon the materials and dimensions of the components of the IC card (see column 11 line 9 - column 12 line 67).

In view of Usami et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the IC card as taught by Hirai

et al as modified by Usami et al, wherein the first and second adhesive layers have a 2% modulus of elasticity of 5 kg/mm² to 55 kg/mm² and a ductility at a breaking point of 200% to 1300%; wherein the 2% modulus of elasticity is 6 kg/mm² to 50 kg/mm²; wherein the reinforcing structural member has a Young's modulus of 150 Gpa to 450 Gpa; wherein the IC card has a thickness of 5 µm to 100 µm, in order to provide an IC card having the desired strength and bending characteristics for the specific application/environment in which the IC card is intended to be used, thereby providing a durable IC card.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Usami et al (US 2002/0027274 A1), Horejs et al (US 5,673,179), Templeton et al (US 2001/0055202 A1), Hirai et al (US 6,607,135 B1), Usami et al (US 6,291,877 B1), Templeton et al (US 6,239,976 B1), Shirai et al (US 6,137,687) and Jarvis (GB 2 279 612 A) all teach IC cards.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared J. Fureman whose telephone number is (571) 272-2391. The examiner can normally be reached on 7:00 am - 4:30 PM M-T, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jared J. Fureman
Jared J. Fureman
Examiner
Art Unit 2876

March 6, 2005